Amendments to the Claims

Please cancel claims 1, 3 and 4 without prejudice.

Please amend claims 2, 5-8, 10, 17-19, 21, 34 and 37 as provided below.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)

2. (Currently Amended) ~~The~~ A nucleic acid molecule ~~of claim 1~~ which is

(a) a nucleic acid molecule encoding the ~~(poly)peptide~~ polypeptide having the amino acid sequence of SEQ ID NO: 7, wherein the leucine residue at position 513 of SEQ ID NO: 7 is replaced by an aromatic amino acid; or

(b) a nucleic acid molecule having the DNA sequence of SEQ ID NO: 17, wherein the codon represented by nnn corresponds to a codon coding for an aromatic amino acid[[;]],

~~(c) a nucleic acid molecule having at least 12 nucleotides which codes for non-desensitizing glutamate receptors of the AMPA-type hybridizing to the complementary strand of a nucleic acid molecule of (a) or (b); or~~

~~(d) a nucleic acid molecule being degenerate as a result of the genetic code to the nucleotide sequence of a nucleic acid molecule as defined in (c)~~

wherein the nucleic acid molecule functions as a non-desensitizing AMPA-receptor or as a non-desensitizing subunit thereof.

3. (Canceled)

4. (Canceled)

5. (Currently Amended) The nucleic acid molecule of claim [[1]]2, wherein said aromatic amino acid residue is tyrosine, phenylalanine, tryptophan or histidine.

6. (Currently Amended) The nucleic acid molecule of claim [[1]]2 which is DNA, RNA or PNA.

7. (Currently Amended) The nucleic acid molecule of claim [[1]]2 encoding a fusion protein.

8. (Currently Amended) A vector comprising the nucleic acid molecule of claim [[1]]2.

9. (Previously Presented) A vector of claim 8 which is an expression vector, a gene targeting vector or a gene transfer vector.

10. (Currently Amended) An isolated host transformed with a vector of claim 8 or comprising the nucleic acid of claim [[1]]2.

11. (Original) The host of claim 10 which is a mammalian cell, an amphibian cell, an insect cell, a fungal cell, a plant cell or a bacterial cell.

12. (Original) The host of claim 11, wherein said mammalian cell is a HEK cell.

13. (Original) The host of claim 11, wherein said amphibian cell is an oocyte.

14. (Original) The host of claim 13, wherein said oocyte is a frog oocyte.

15. (Original) The host of claim 10 which is a non-human transgenic organism.

16. (Original) The host of claim 15, wherein said non-human organism is a mammal, amphibian, an insect, a fungus or a plant.

17. (Currently Amended) A method for producing a ~~(poly)peptide~~ polypeptide encoded by a nucleic acid molecule of claim [[1]]2 comprising culturing a host transformed with a vector containing a nucleic acid molecule of claim [[1]]2 and isolating the produced ~~(poly)peptide~~ polypeptide.

18. (Withdrawn - Currently Amended) A ~~(poly)peptide~~ polypeptide encoded by the nucleic acid molecule of claim [[1]]2.

19. (Withdrawn - Currently Amended) An antibody specifically directed to the ~~(poly)peptide~~ polypeptide of claim 18, wherein said antibody specifically reacts with an epitope comprising the aromatic amino acid which replaces the leucine at position 513 of the wildtype human AMPA-receptor $GluR3_{flip}$.

20. (Withdrawn) The antibody of claim 19 which is a monoclonal antibody.

21. (Currently Amended) A composition comprising a nucleic acid molecule of claim [[1]]2, a vector of claim 8, a ~~(poly)peptide~~ polypeptide of claim 18 [[and/]]or an antibody of claim 19.

22. (Previously Presented) The composition of claim 21 which is a pharmaceutical composition, further comprising one or more of a pharmaceutically acceptable carrier, a diluent or excipient.

23. (Original) The composition of claim 21 which is a diagnostic composition, optionally further comprising suitable means for detection.

24. (Withdrawn) A method for the blocking of desensitation of glutamate receptor of the AMPA-type, comprising the step of replacing a leucine corresponding to position 513 of the wildtype human AMPA-receptor $GluR3_{flip}$ with an aromatic amino acid.

25. (Withdrawn) A method of identifying molecules which are capable of interacting with glutamate receptors of the AMPA-type, comprising the steps of:

(a) contacting a non-desensitizing AMPA-receptor as encoded by a nucleic acid molecule of claim 1, a vector of claim 8, a host of claim 10, or an antibody of claim 19 with said molecule; and

(b) identifying among these molecules the molecules which are capable of interacting with said glutamate receptors of the AMPA-type.

26. (Withdrawn) A method for the characterization of molecules which are capable of interaction with glutamate receptors of the AMPA-type, comprising the steps of

(a) contacting a non-desensitizing AMPA-receptor as defined in claim 1, a vector of claim 8, a host of claim 10, or an antibody of claim 19 with said molecules; and

(b) measuring and/or detecting the characteristic effect said molecules evoke.

27. (Withdrawn) A method of screening for molecules which are capable of interacting with glutamate receptors of the AMPA-type, comprising the steps of

(a) contacting a non-desensitizing AMPA-receptor as encoded by a nucleic acid molecule of claim 1, a vector of claim 8 or a host of claim 10 with a candidate molecule; and

(b) measuring and/or detecting a response; and

(c) comparing said response to a standard response as measured in the absence of said candidate molecule.

28. (Withdrawn) A method for the production of a pharmaceutical composition comprising the steps of the method of claim 25 and comprising a further step, wherein a derivative of said identified, characterized and/or screened molecule is generated.

29. (Withdrawn) A method for the production of a pharmaceutical composition comprising the steps of the method of claim 25 and formulating the molecules identified, characterized, screened and/or derivatized in pharmaceutically acceptable form.

30. (Withdrawn) The method of claim 25, wherein said molecule(s) comprise(s) (a) neuroprotective and/or (a) nootropic molecule(s).

31. (Withdrawn) The method of claim 25, wherein said molecule(s) comprise(s) antagonist(s), partial antagonist(s), partial agonist(s) and/or agonist(s) for glutamate receptors.

32. (Withdrawn) A method of using a non-desensitizing AMPA-receptor as a biosensor for glutamate concentrations comprising contacting a non-desensitizing AMPA-receptor as encoded by the nucleic acid molecule of claim 1 or a host of claim 10 with a saturating agonist,

thereafter contacting the receptor with a sample and detecting a current produced by binding of glutamate to the receptor as compared to the current of the receptor prior to the contacting with the sample.

33. (Withdrawn) A method for the characterization of molecules that are capable of interaction with glutamate receptors of the AMPA-type comprising contacting a non-desensitizing AMPA-receptor as encoded by the nucleic acid molecule of claim 1 or a host of claim 10 with molecules suspected of being capable of interaction with glutamate receptors of the AMPA-type and detecting expression of the receptor in the presence of the molecule as compared to expression of the receptor in the absence of the molecule, thereby characterizing molecules that are capable of interaction with glutamate receptors of the AMP-type.

34. (Currently Amended) A method for preventing [[and/]]or treating neurological or neurodegenerative disorders comprising administering to a subject having a neurological or neurodegenerative disorder a composition comprising a nucleic acid molecule of claim [[1]]2, a vector of claim 8, a host of claim 10, a ~~(poly)peptide~~ polypeptide of claim 18 [[and/]]or the antibody of claim 19.

35. (Previously Presented) The method of claim 34, wherein said neurological or neurodegenerative disorders are selected from the group consisting of Alzheimer's disease, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis (FALS/SALS), ischemia, stroke, epilepsy, AIDS dementia and learning disorders.

36. (Canceled)

37. (Currently Amended) A kit comprising the nucleic acid molecule of claim [[1]]2, the vector of claim 8, the host of claim 11, the ~~(poly)peptide~~ polypeptide of claim 18, the antibody of claim 19 or the molecule as identified, characterized or screened in claim 25.